

IN THE CLAIMS

Claim 1 (Currently Amended): An aqueous suspension comprising (1) one or more pigments, fillers or minerals, and optionally (2) a dispersant polymer to stabilise the rheology of the suspension, wherein,

a) said component (1) comprises a natural carbonate and the reaction product or products of said carbonate with gaseous CO_2 and the reaction product or products of said carbonate with one or more medium-strong to strong H_3O^+ ion-providers, and

b) wherein said suspension has a pH greater than 7.5 measured at 20° C, and wherein paper filled or coated by treating with said suspension, at a constant area and thickness, weighs less than paper treated with said suspension but without said reaction products.

Claim 2 (Currently Amended): The aqueous suspension according to Claim 1 wherein the natural carbonate is a natural calcium carbonate (CaCO_3).

Claim 3 (Previously Presented): The aqueous suspension according to Claim 1, wherein the strong H_3O^+ ion-provider is selected from the group consisting of hydrochloric acid, sulphuric acid and mixtures thereof, and the medium-strong H_3O^+ ion-provider is selected from the group consisting of H_2SO_3 , HSO_4^- , H_3PO_4 , oxalic acid and mixtures thereof.

Claim 4 (Currently Amended): The aqueous suspension according to Claim [[1]] 2, wherein the quantity in moles of the medium-strong to strong H_3O^+ ion-provider relative to the number of moles of CaCO_3 is in total between 0.1 and 2.

Claim 5 (Previously Presented): The aqueous suspension according to Claim 1, wherein the pigment, filler or mineral has a BET specific surface area, measured in accordance with the ISO 9277 Standard, of between $5 \text{ m}^2/\text{g}$ and $200 \text{ m}^2/\text{g}$.

Claim 6 (Previously Presented): The aqueous suspension according to Claim 1, wherein the pigment, filler or mineral presents the following characteristics:

- a mean grain diameter, measured by the sedimentation method on a Sedigraph 5100™, between 50 and 0.1 micrometers, and
- a BET specific surface area, measured in accordance with ISO 9277, ranging from $15 \text{ m}^2/\text{g}$ to $200 \text{ m}^2/\text{g}$.

Claim 7 (Previously Presented): The aqueous suspension according to Claim 6 wherein the pigment, filler or mineral presents the following characteristics:

- a mean grain diameter, measured by the sedimentation method on a Sedigraph 5100™, between 7 and 0.7 micrometers, and
- a BET specific surface area, measured in accordance with ISO 9277, ranging from $30 \text{ m}^2/\text{g}$ to $60 \text{ m}^2/\text{g}$.

Claim 8 (Previously Presented): A pigment, filler or mineral in the dry state obtained by drying the aqueous suspension according to Claim 1.

Claim 9 (Currently Amended): A process for treating pigments, fillers or minerals in aqueous suspension, containing a natural carbonate comprising treating said pigments, fillers

or minerals with a combination of one or more medium-strong to strong H_3O^+ ion-providers and gaseous CO_2 ,

wherein paper filled or coated by treating with said suspension, at a constant area and thickness, weighs less than paper treated with said suspension but without said combination.

Claim 10 (Currently Amended): The process according to Claim 9, wherein the gaseous CO_2 comes from an external CO_2 supply or from the recirculation of CO_2 or from the continuous addition of the same or ~~not~~ another medium-strong to strong provider of H_3O^+ ions as used in the treatment of from an excess pressure of CO_2 .

Claim 11 (Currently Amended): The process according to Claim 9 ~~further~~ comprising the following three stages:

- a) Treatment with one or more medium-strong to strong providers of H_3O^+ ions
- b) Treatment with gaseous CO_2 , whether this treatment be an integral part of stage a), be carried out in parallel with stage a) or be carried out after stage a)
- c) The raising of the pH beyond 7.5, measured at 20°C , in a time interval after the end of stages a) and b) of between 1 hour and 10 hours without addition of a base, or immediately after the end of stages a) and b) with the addition of a base, stage c) being the final stage in the process.

Claim 12 (Previously Presented): The process according to Claim 11, wherein stages a) and b) may be repeated several times.

Claim 13 (Currently Amended): The process according to Claim 11, wherein the pH measured at 20° C is between 3 and 7.5 during stages a) and b) of the treatment and ~~by the fact that~~ the treatment temperature is between 5° C and 90° C.

Claim 14 (Currently Amended): The process according to Claim 11, wherein the concentration of gaseous CO₂ in the suspension is, in terms of the volume, such that the ratio (volume of suspension : volume of gaseous CO₂) is between 1:0.05 and 1:20 with said ratio being between 1:1 and 1:20 in stage a) and between 1:0.05 and 1:1 in stage b).

Claim 15 (Currently Amended): The process according to Claim 14, wherein the concentration of gaseous CO₂ in the suspension is, in terms of the volume, such that the ratio ~~which is the~~ (volume of suspension : volume of gaseous CO₂) is between 1:0.05 and 1:10 with ~~the~~ said ratio being between 1:0.5 and 1:10 in stage a) and between 1:0.05 and 1:1 in stage b).

Claim 16 (Previously Presented): The process according to Claim 11, wherein the duration of stage b) of the treatment is between 0 hours and 10 hours.

Claim 17 (Previously Presented): The process according to Claim 9, wherein the pigment, filler or mineral containing natural carbonate is chosen from the group consisting of natural carbonate, carbonate containing a dolomite, mixtures thereof with talc, mixtures thereof with kaolin, mixtures thereof with titanium oxide TiO₂, magnesium oxide MgO and other minerals which are inert towards medium-strong to strong H₃O⁺ ion-providers.

Claim 18 (Currently Amended): The process according to Claim 17, wherein the natural ~~calcium~~ carbonate is a marble, a calcite or a chalk.

Claim 19 (Previously Presented): The process according to Claim 9, wherein the strong provider or providers of H_3O^+ ions is hydrochloric acid or sulphuric acid and the medium-strong provider or providers of H_3O^+ ions is selected from the group consisting of H_2SO_3 , HSO_4^- , H_3PO_4 and oxalic acid.

Claim 20 (Previously Presented): The process according to Claim 11, further comprising the addition of a dispersing agent and optionally a reconcentration stage, after the third stage of treatment.

Claim 21 (Previously Presented): An aqueous suspension of a plurality of fillers or minerals containing a natural carbonate, wherein said suspension is obtained by the process according to Claim 9.

Claim 22 (Currently Amended): An aqueous suspension according to Claim 21, wherein the pigment, filler or mineral containing a natural carbonate is chosen from the group consisting of natural carbonate, carbonate containing a dolomite, mixtures thereof with talc, mixtures thereof with kaolin, mixtures thereof with titanium oxide TiO_2 , magnesium oxide MgO and other minerals which are inert towards medium-strong to strong H_3O^+ ion-providers.

Claim 23 (Previously Presented): A pigment, filler or mineral in the dry state, obtained by drying an aqueous suspension according to Claim 21.

Claim 24 (Previously Presented): A preparation for use in paper-making, comprising at least one aqueous suspension according to Claim 1.

Claim 25 (Currently Amended): A process for ~~for~~ coating paper comprising applying the aqueous suspensions as claimed in Claim 1 onto a sheet of paper.

Claim 26 (Previously Presented): A process for making a paper sheet with a paper filler comprising manufacturing a sheet of paper with the aqueous solution claimed in Claim 1.

Claim 27 (Previously Presented): A process for coating and manufacturing a sheet of paper comprising coating and impregnating, in any order, a sheet of paper with the aqueous solution claimed in Claim 1 wherein said aqueous solution acts as a paper filler and as a preparation for coating and pigmentation of the surface of the paper.

Claim 28 (Currently Amended): The process as claimed in Claim 26 ~~wherein~~, wherein the weight of the paper produced, at constant surface area, is reduced by 3% to 15%.

Claim 29 (Previously Presented): A paint or coating comprising the aqueous solution as claimed in Claim 1.

Claim 30 (Previously Presented): A process for manufacturing a sheet of paper or board comprising incorporating a suspension or preparation according to Claim 1 in a process

of manufacture of the sheet in terms of the preparation of a thick stock or a thin stock or both, one or more times.

Claim 31 (Previously Presented): A process for manufacturing a sheet of paper or board comprising incorporating a suspension or preparation according to Claim 1 in the process of manufacture of said sheet wherein said suspension or preparation is added to a recycled white liquor or to a recycled coating broke.

Claim 32 (Currently Amended): A process for manufacturing a sheet of paper or board comprising incorporating a suspension or preparation obtained by the process according to Claim 9 in said process of manufacture of said sheet wherein said suspension or preparation is added to a recycled white liquor or to a recycled coating broke.

Claim 33 (Previously Presented): A process for manufacturing a sheet of paper or board comprising incorporating a suspension or preparation according to Claim 1 in the process of manufacture of said sheet wherein said sheet is obtained from cellulose fibres made from wood.

Claim 34 (Previously Presented): A process for manufacturing a sheet of paper or board comprising incorporating a suspension or preparation according to Claim 1 in the process of manufacture of said sheet wherein said sheet is obtained from fibres not originating from wood.

Claim 35 (Previously Presented): A paper or board obtained by the process as claimed in Claim 30.

Claim 36 (Previously Presented): A method of printing comprising digitally applying ink onto the paper or board claimed in Claim 35.

Claim 37 (Previously Presented): The aqueous suspension claimed in Claim 1 wherein the natural carbonate is selected from the group consisting of marble, calcite, chalk and carbonate containing dolomite.

Claim 38 (Previously Presented): The aqueous suspension according to Claim 4, wherein the quantity in moles of the medium-strong to strong H_3O^+ ion-providers relative to the number of moles of CaCO_3 is in total between 0.25 and 1.

Claim 39 (Previously Presented): The aqueous suspension according to Claim 1, wherein the pigment, filler or mineral has a BET specific surface area, measured in accordance with the ISO 9277 Standard, of from $20 \text{ m}^2/\text{g}$ to $80 \text{ m}^2/\text{g}$.

Claim 40 (Previously Presented): The aqueous suspension according to Claim 1, wherein the pigment, filler or mineral has a BET specific surface area, measured in accordance with the ISO 9277 Standard, of from $30 \text{ m}^2/\text{g}$ to $60 \text{ m}^2/\text{g}$.

Claim 41 (Previously Presented): The aqueous suspension according to Claim 6, wherein the pigment, filler or mineral presents the following characteristics:

- a mean grain diameter, measured by the sedimentation method on a Sedigraph 5100™, between 25 and 0.5 micrometers, and

- a BET specific surface area, measured in accordance with ISO 9277, ranging from 20 m²/g to 80 m²/g.

Claim 42 (Previously Presented): The process as claimed in Claim 10, wherein the CO₂ pressure is from 0.05 to 5 bars.

Claim 43 (Previously Presented): The process as claimed in Claim 11, wherein the raising of the pH beyond 7.5, measured at 20° C, in a time interval after the end of stages a) and b) of between 1 hour and 5 hours without addition of a base, or immediately after the end of stages a) and b) with the addition of a base, stage c) being the final stage in the process.

Claim 44 (Previously Presented): The process as claimed in Claim 13 wherein the treatment temperature is between 45 and 60°C.

Claim 45 (Previously Presented): The process as claimed in Claim 16 wherein the duration of stage b) of the treatment is between 2 hours and 6 hours.

Claim 46 (Previously Presented): A preparation for use in paper-making, comprising at least one aqueous suspension according to Claim 21.

Claim 47 (Previously Presented): A process for coating paper comprising applying the aqueous suspension as claimed in Claim 21 onto a sheet of paper.

Claim 48 (Previously Presented): A process for making a paper sheet with a paper filler comprising manufacturing a sheet of paper with the aqueous suspension claimed in Claim 21.

Claim 49 (Previously Presented): A process for coating and manufacturing a sheet of paper comprising coating and impregnating, in any order, a sheet of paper with the aqueous solution claimed in Claim 21 wherein said aqueous solution acts as a paper filler and as a preparation for coating and pigmentation of the surface of the paper.

Claim 50 (Previously Presented): A paint or coating comprising the aqueous suspension as claimed in Claim 21.

Claim 51 (Previously Presented): A process for manufacturing a sheet of paper or board comprising incorporating a suspension or preparation according to Claim 21 in the process of manufacture of the sheet in terms of a preparation of a thick stock or a thin stock or both, one or more times.

Claim 52 (Previously Presented): A process for manufacturing a sheet of paper or board comprising incorporating a suspension or preparation according to Claim 21 in the process of manufacture of said sheet wherein said suspension or preparation is added to a recycled white liquor or to a recycled coating broke.

Claim 53 (Previously Presented): The process claimed in claim 33 wherein said cellulose fibers are from a deciduous or resinous wood.

Claims 54-60 (Canceled).

DISCUSSION OF THE AMENDMENT

Consistent with the amendment in the parent application, appropriate subheadings have been inserted into the specification. In addition, Figure A and Figure B have been redesignated as Figure 1A and Figure 1B, respectively. In addition, the graph at page 30, line 19 has been deleted and replaced with corresponding Figure 2. Appropriate amendments in the specification to be consistent therewith have been made. **Submitted herewith** are a replacement drawing sheet for Figures 1A and 1B, and a new drawing sheet for Figure 2.

Claims 1 and 9 have each been amended by reciting a property of the claimed or recited suspension, as supported, for example, in the specification at page 2, lines 11-15 and the Examples, but these amended claims are not intended to limit, and do not limit, the suspensions to any particular application, such as paper-making. Claim 2 has been amended to provide antecedent basis for Claim 4, which has been amended to depend on Claim 2. Claim 10 has been amended by replacing "not" with --another--, as supported in the specification at page 11, line 10. Claim 11 has been amended by deleting the word "further" to clarify that the recited stages are not additional to the process recited in Claim 9. Claims 14 and 15 have been partially amended to incorporate language used in these claims originally. Claim 18 has been amended to be consistent with Claim 17. Claim 22 has been amended to correct an inadvertent omission of the term --suspension-- from the previous amendment. Claim 32 has been amended to recite that the suspension or preparation which is incorporated is --obtained by the process--, according to Claim 9, since Claim 9 claims a process. Claims 54-60 have been canceled as redundant. Finally, the remaining amendments are clerical in nature.

No new matter has been added by the above amendment. Claims 1-53 are now pending in the application.